PCT/AU00/00281

Patent Office
Canberra

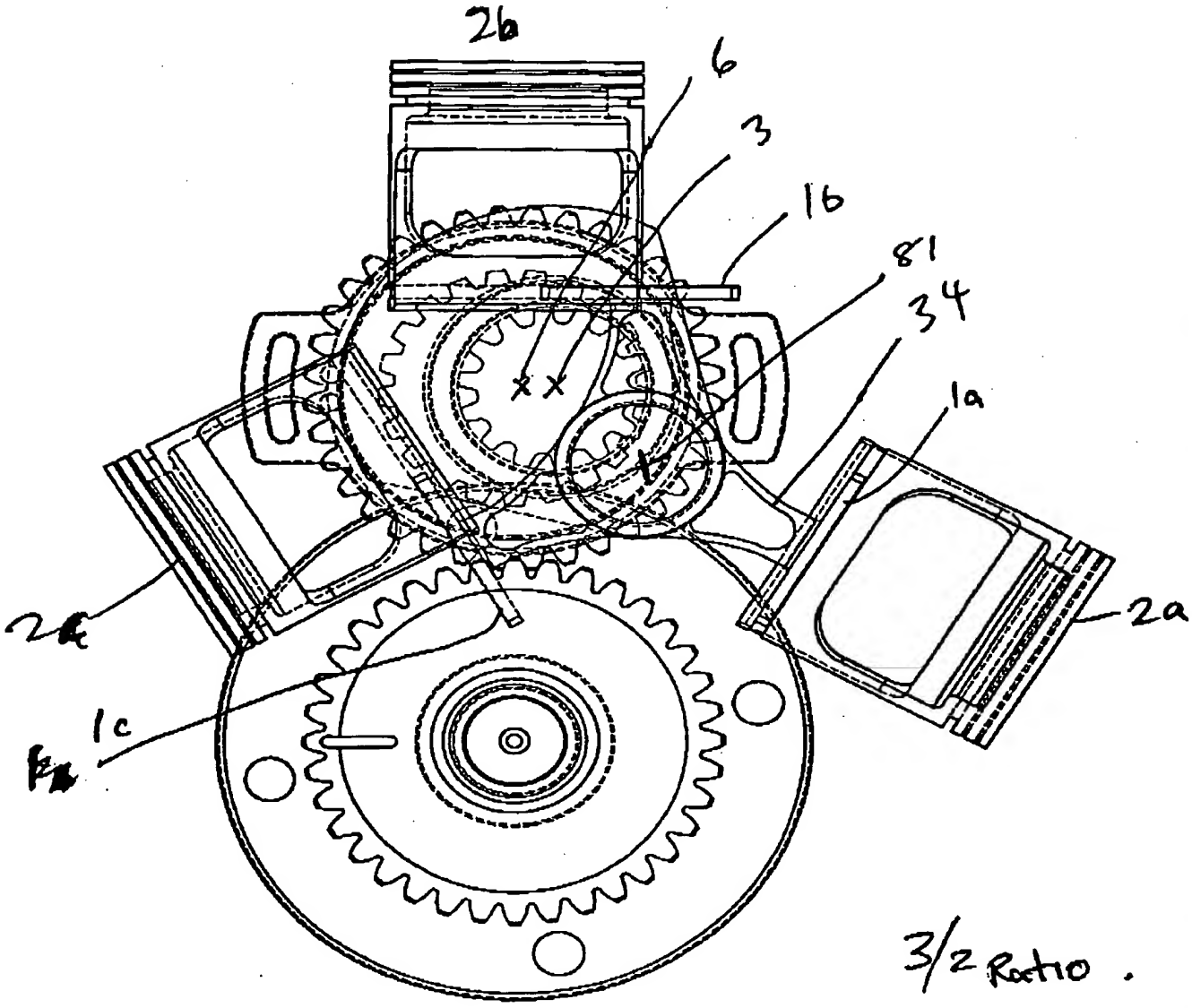
I, KAY WARD, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. PQ 1654 for a patent by PETER RAFFAELE and MICHAEL RAFFAELE filed on 15 July 1999.

WITNESS my hand this
Eleventh day of April 2000

KAY WARD
TEAM LEADER EXAMINATION
SUPPORT AND SALES

These drawings are an additional reference source for our earlier applications relating to scotch yoke mechanisms for fluid pumps or engines, in these applications reference is made to 3 cycle engines or compound crank mechanisms as well as standard crank layouts. The adoption of a scotch yoke type connection for the piston/s wherein the slide is perpindicular to the piston axis eliminates substantially the piston motion normally observed at bottom dead centre in compound crank engines of this type with a pinion wheel to annular gear ratio of 3/2 . Australian patent applications numbered pp9266, pp9306, pp9573, pq0287, pq 0795, pq0895, pq0972, pq0989,and the other application lodged this day and pct au98/00287 are hereby included in total in this appliucation. The slides are also paralell to perpindicular to the main axis and the big end axis. The drawings depict a 3 cylinder machine, however a single cylinder or 2 cylinder machine may be made by deleting unwanted cylinders. This application of scotch yoke mechinisms of our invention does not produce a sinusoidal motion of the piston rather it produces a different motion albeit a useful motion when one is attempting to convert fuel into rotational work. It has a slower piston motion in the compression and combustion phase of the cycle than either the pure sinusoidal or quasi sinusoidal devices of our invention or conventional engines. The earlier applications viewed in regard to these drawings are perhaps made clearer by the addition of these drawings. Fig 1 shows a compound crank mechanism with gear ratio of 3/2, the piston 2a is at top dead centre, the conrod 34 connects the piston to a crank big end whose axis is 81, whose main axis is mounted rotatably on axis 3 for orbit about primary crank axis 6, the conrod connects with piston via slide 1a

fig 1



3/2 Ratio.

Fig 2

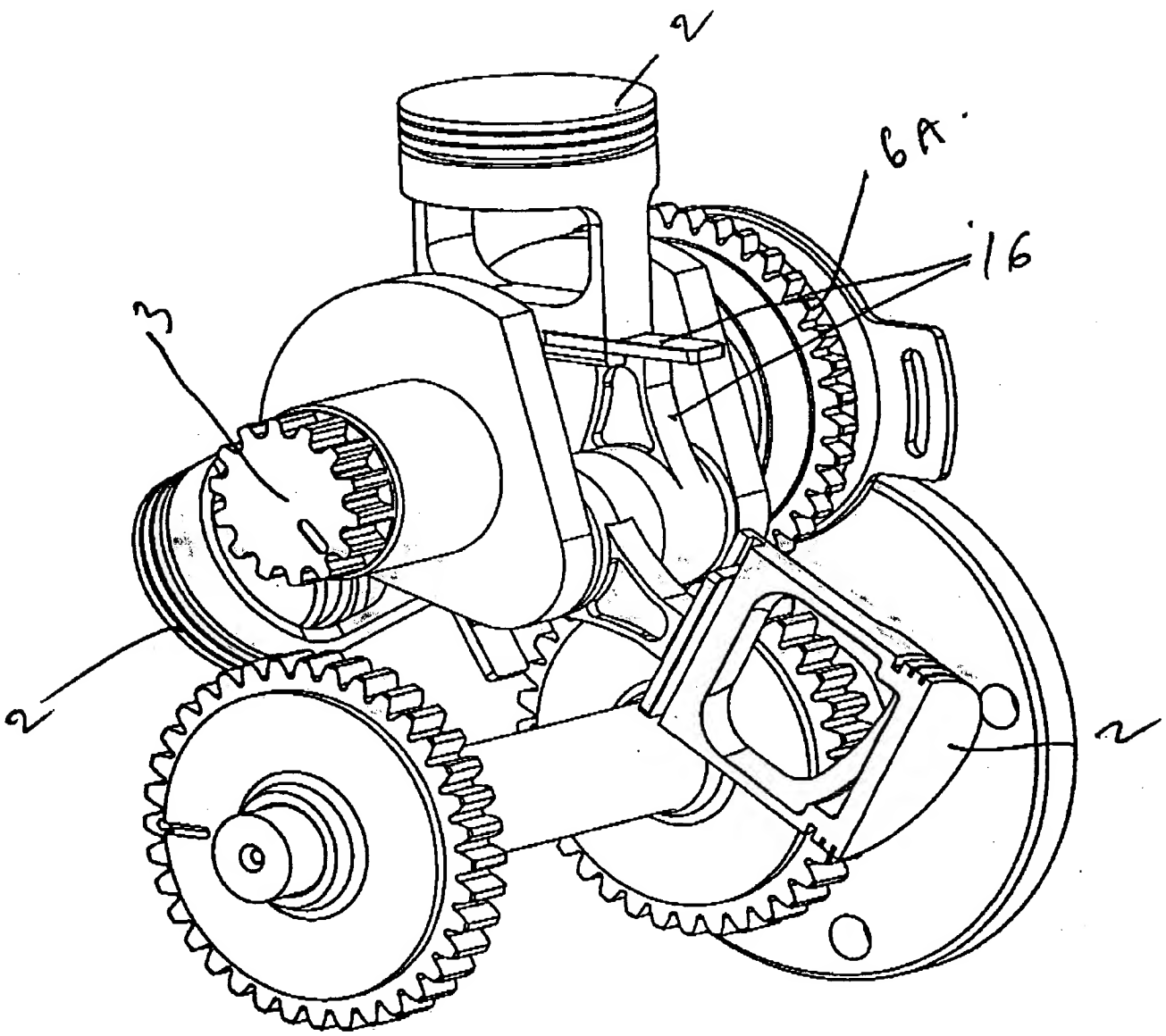
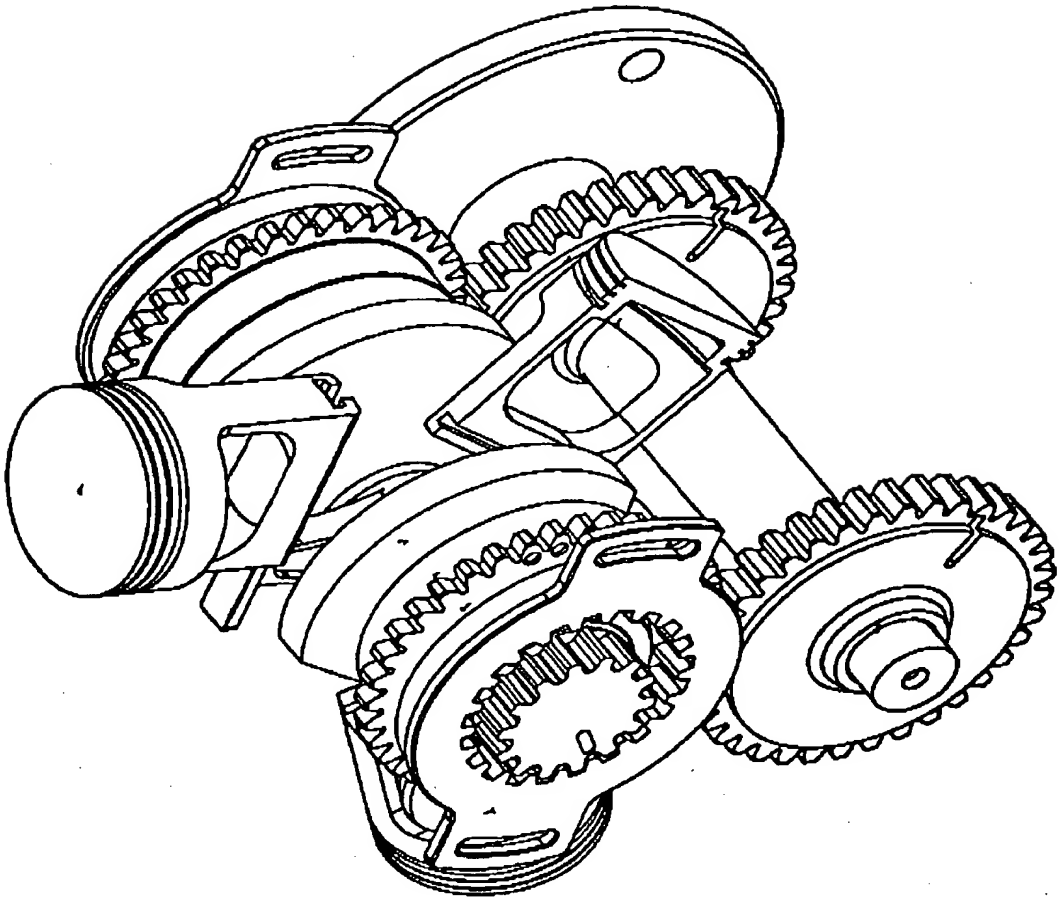


fig 3.



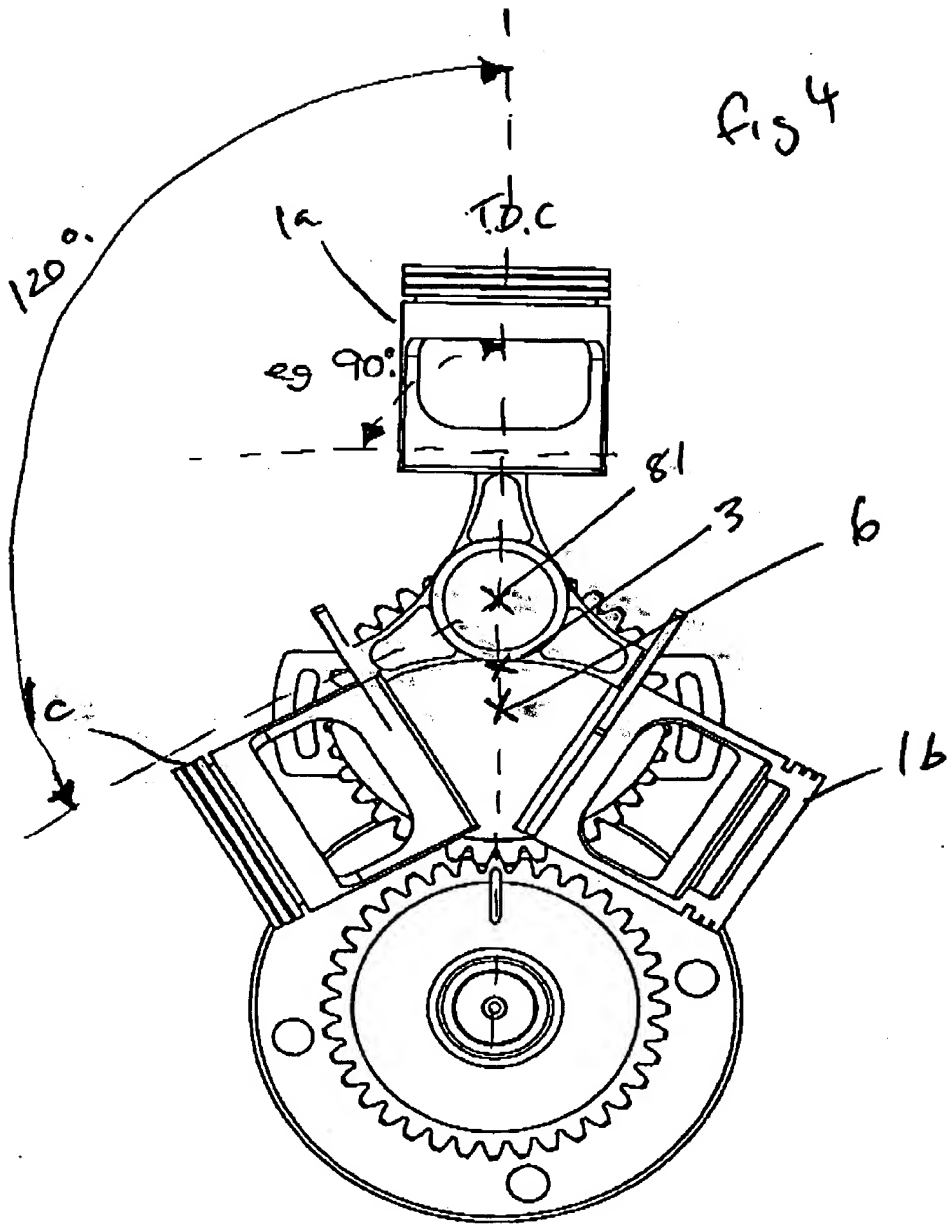


Fig 4

Fig 5

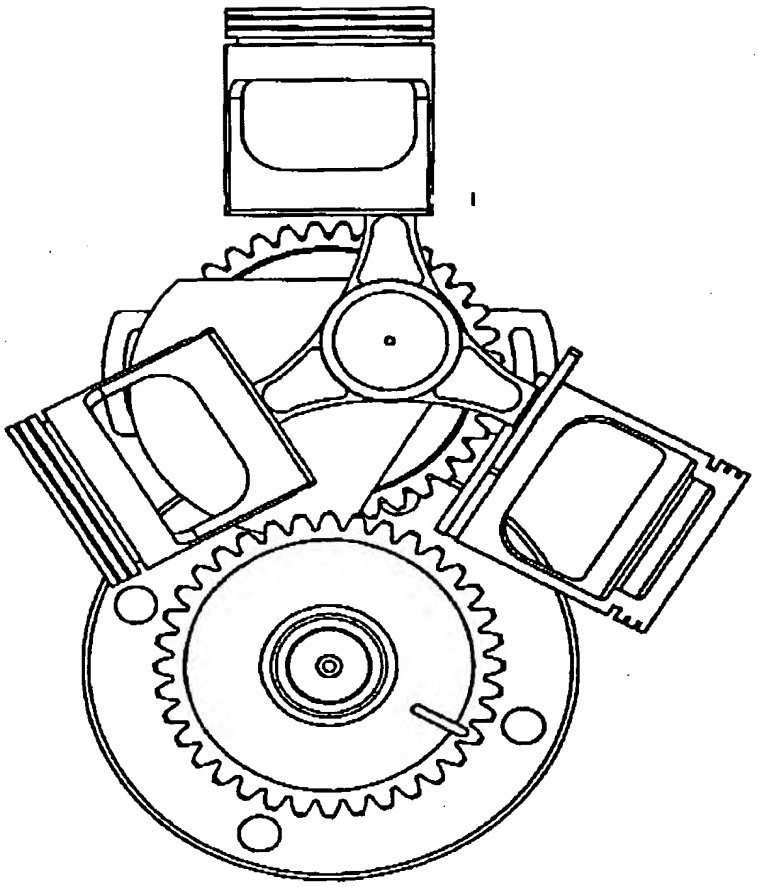


Fig 6.

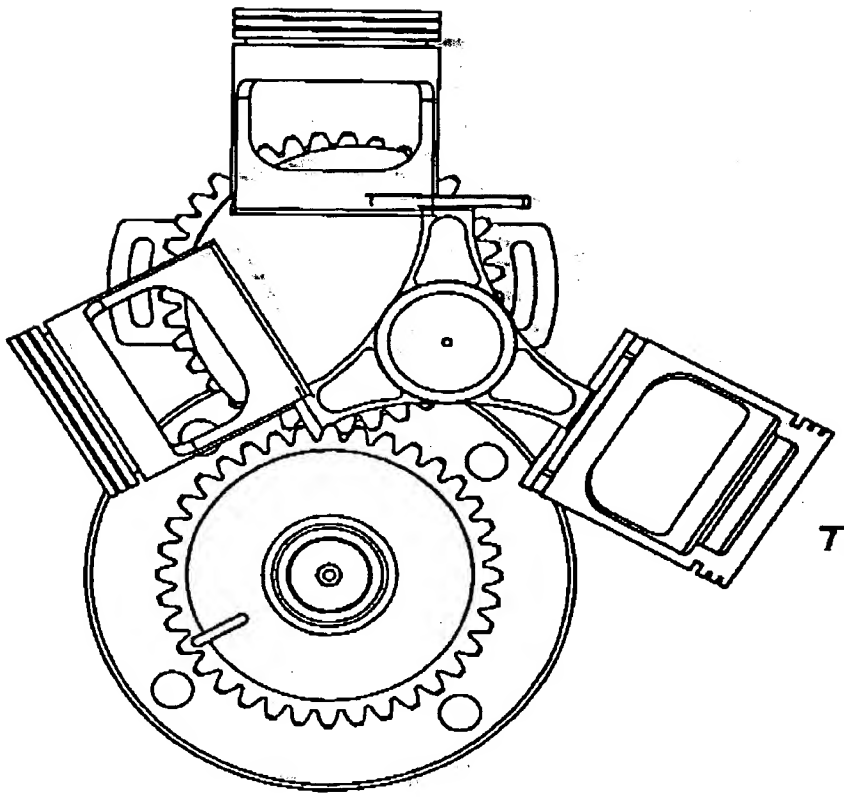


fig 1

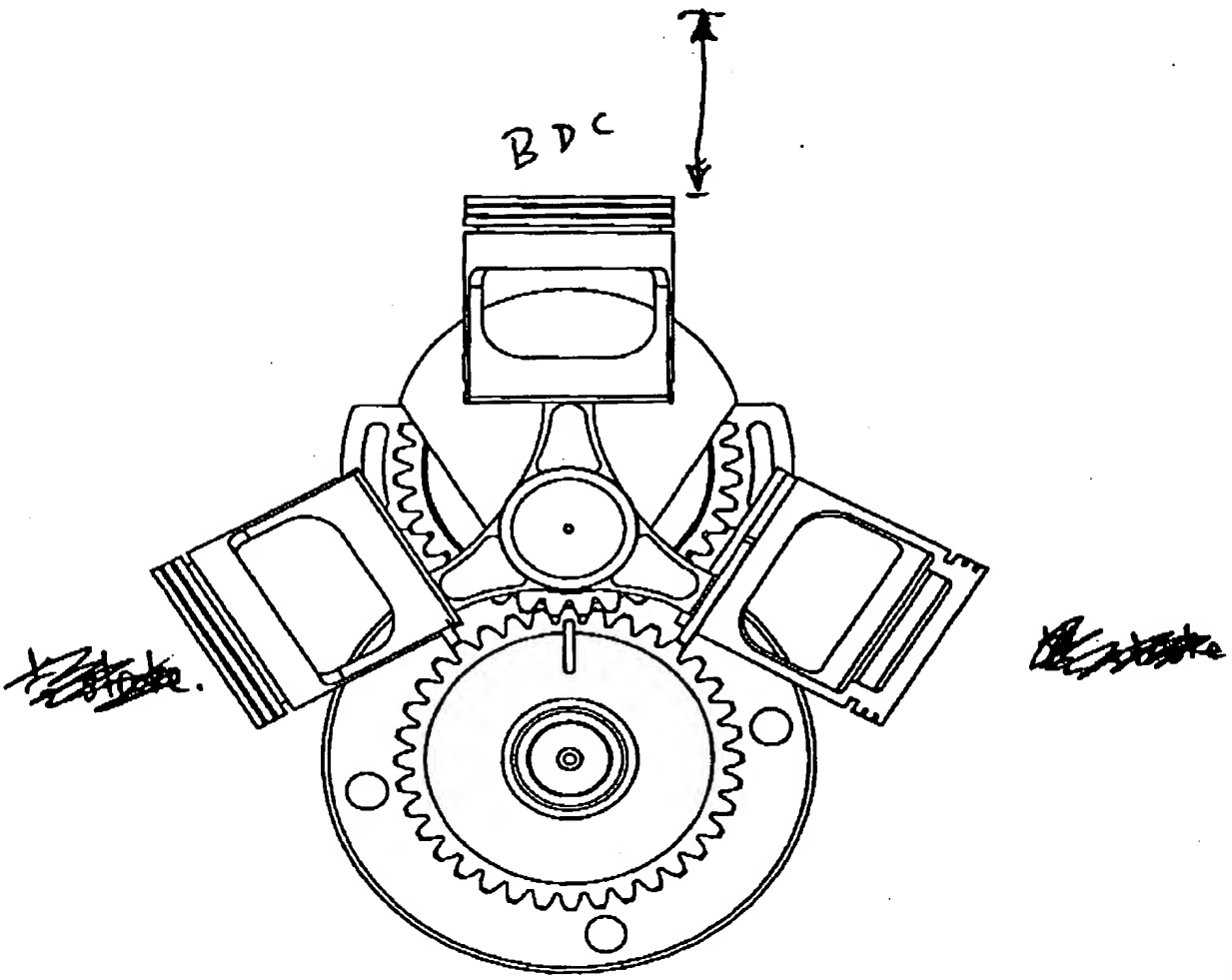


fig 8

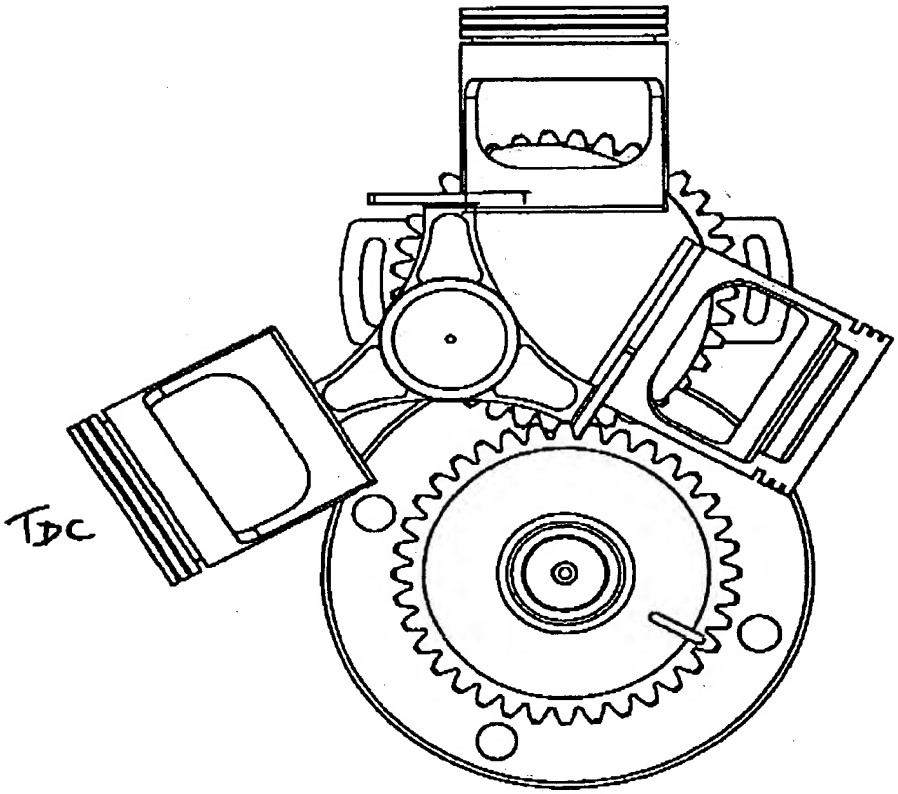


fig 9.